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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,266	01/16/2004	Sheng Liang	6502.0523-01	5702
6/6/67 7590 04/30/2008 SUN MICROSYSTEMS/HINNEGAN, HENDERSON LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413				
EXAMINER				
RUTTEN, JAMES D				
ART UNIT		PAPER NUMBER		
2192				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/758,266

**Applicant(s)**

LIANG ET AL.

**Examiner**

JAMES RUTTEN

**Art Unit**

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 55-74 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 55-74 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

### **DETAILED ACTION**

1. This action is in response to Applicant's submission filed 1/30/08, responding to the 6/28/07 Office action which detailed the rejection of claims 10, 20, and 39-54. Claims 10, 20, and 39-54 have been canceled, and new claims 55-74 have been added. Claims 55-74 remain pending in the application and have been fully considered by the examiner.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 55-74 have been considered but are moot in view of the new grounds of rejection.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 66-73 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 66 recites the limitation "A method according to claim 64" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claims 67-73 contain similar limitations. Due to the ordering of the claims, this will be interpreted as a typo which should instead refer to claim 65 for antecedent basis.

***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 55-64 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 55 is directed to "A system" comprising a profiler interface and a profiler. Thus, this apparatus does not appear to contain any elements related to a device or physical apparatus, but rather contains only descriptive material per se. As such, this apparatus comprising a collection of representations is regarded as being directed to descriptive material per se. Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component, and nonfunctional descriptive material includes but is not limited to music, literary works, and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. See MPEP 2106.01. However, an apparatus that is claimed as comprising some type of physical hardware element, such as a processor and memory, would be statutory since these elements would provide some requisite functionality that would satisfy the practical application requirement. Claims 56-64 are dependent upon claim 55 and are rejected for the same reasons.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 55-58, 64-68, and 74 are rejected under 35 U.S.C. 102(e) as being anticipated by "Java Virtual Machine Profiler Interface (JVMPi)".

In regard to claim 55, JVMPi discloses:

*A system (see figure on page 3), comprising:*

*a virtual machine profiler interface that communicates information regarding activities of a garbage collector; and* See page 3, e.g. "JVMPi is a two-way function call interface..." Also see page 5, section 1.3, e.g. "GC start and finish."

*a profiler that reports the activities.* See page 3, e.g. "profiler agent." Further, see the figure on page 3 which depicts the JVMPi interface which receives events from the virtual machine and forwards them to the profiler agent which in turn reports the activities.

In regard to claim 56, the above rejection of claim 55 is incorporated. JVMPi further discloses: *a virtual machine, wherein the virtual machine creates a plurality of arenas within a heap to facilitate garbage collection.* See page 7, e.g. "arena delete."

In regard to claim 57, the above rejection of claim 55 is incorporated. JVMPi further discloses: *wherein the profiler comprises a profiler agent for providing at least*

*one of a request for specific types of events and information or an enablement notification of specific types of events and information.* See figure on page 3, e.g. "profiler agent."

In regard to claim 58, the above rejection of claim 57 is incorporated. JVMPI further discloses: *a virtual machine, wherein the virtual machine receives, via the virtual machine profiler interface, at least one of the request or the enablement notification.* See top of page 3, e.g. "requests for more information."

In regard to claim 64, the above rejection of claim 55 is incorporated. JVMPI further discloses: *wherein the virtual machine profiler interface accommodates two or more profilers.* See middle of page 3, e.g. "different profiler front-ends."

In regard to claim 65, JVMPI discloses a method. See page 3, e.g. "notifies the profiler agent," "issues controls and requests," "turn on/off a specific event notification," etc. All further limitations have been addressed in the above rejection of claim 55.

In regard to claims 66-68, the above rejection of claim 65 is incorporated. All further limitations have been addressed in the above rejections of claims 56-58, respectively.

In regard to claim 74, JVMPI discloses: *A computer-readable storage device, comprising instructions for one or more processors.* See figure on page 3 which depicts a computer readable storage device. All further limitations have been addressed in the above rejection of claim 55.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 59-63 and 69-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over JVMPI as applied to claim 55 above, and further in view of U.S. Patent 5,857,210 to Tremblay et al. ("Tremblay").

In regard to claim 59, the above rejection of claim 55 is incorporated. JVMPI does not expressly disclose: *a Mark-and-Sweep garbage collector.* However, Tremblay teaches mark-sweep garbage collectors. See column 2 lines 7-8, e.g. "mark-sweep." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use JVMPI's garbage collection profiling with Tremblay's mark-sweep garbage collector in order to provide profiling while utilizing a well-known "classical garbage collection method" as suggested by Tremblay (see column 2 lines 7-8).

In regard to claim 60, the above rejection of claim 55 is incorporated. JVMPI does not expressly disclose: *a Mark-Sweep-Compact garbage collector*. However, Tremblay discloses the use of a Mark-Sweep-Compact garbage collector. See column 2 lines 33-37, e.g. "mark-compact." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use JVMPI's garbage collection profiling with Tremblay's mark-compact garbage collector in order to provide profiling while utilizing a well-known garbage collection method which provides reductions in fragmentation as suggested by Tremblay (see column 2 lines 35-36).

In regard to claim 61, the above rejection of claim 55 is incorporated. JVMPI does not expressly disclose: *a Two-Space-Copying garbage collector*. However, Tremblay teaches two space copying garbage collection. See column 2 lines 39-51, e.g. "copying garbage collection." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use JVMPI's garbage collection profiling with Tremblay's copying garbage collector in order to provide profiling while utilizing a well-known garbage collection method which provides reductions in fragmentation as suggested by Tremblay (see column 2 lines 49-51).

In regard to claim 62, the above rejection of claim 55 is incorporated. JVMPI does not expressly disclose: *a Generational garbage collector*. However, Tremblay teaches a generational garbage collector. See column 2 lines 52 - column 3 line 12, e.g.



"generational approaches." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use JVMPI's garbage collection profiling with Tremblay's generational garbage collector in order to provide profiling while utilizing a well-known garbage collection method which provides short pause times as suggested by Tremblay (see column 2 lines 59-61).

In regard to claim 63, the above rejection of claim 55 is incorporated. JVMPI does not expressly disclose: *a Reference-Counting garbage collector*. However, Tremblay teaches reference counting garbage collectors. See column 2 lines 7-8, e.g. "reference counting." It would have been obvious to one of ordinary skill in the art at the time the invention was made to use JVMPI's garbage collection profiling with Tremblay's reference counting garbage collector in order to provide profiling while utilizing a well-known "classical garbage collection method" as suggested by Tremblay (see column 2 lines 7-8).

In regard to claims 69-73, the above rejection of claim 65 is incorporated. All further limitations have been addressed in the above rejections of claims 59-63, respectively.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **JAMES RUTTEN** whose telephone number is (571)272-3703. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/jdr/

/Tuan Q. Dam/  
Supervisory Patent Examiner, Art Unit 2192